

REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-5 remain pending in the application subsequent to entry of this Amendment.

Minor amendments have been made in claims 2-4 to improve form of presentation and comply with customary claim terminology.

In item 2 of the Official Action, claims 1-4 are provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-4 of co-pending application Serial No. 10/402,108. Submitted with this response is a Terminal Disclaimer thereby removing this provisional rejection.

The balance of the Official Action, items 4-7 are four separate "obviousness" rejections each based upon a combination of three references Kai - X - Ryu. The first (Kai) and the third (Ryu) reference in each rejection are the same and it is the "middle" (-X-) reference that changes from one rejection to the other. In addition, it would appear that each individual statement in support of the relevance of the "variable" (-X-) reference would indicate each of these four references disclose essentially the same subject matter at least to the extent that it may be relevant (if at all) to the claims of the present application.

In overview, it is applicants' position that the combination of references it is inappropriate, one that would not be constructed by one of ordinary skill in the art and is in large part based upon a hindsight reconstruction of the prior art in particular as regards to the use of hollow organic pigment. Applicants traverse these four rejections for at least the following reasons:

Applicants' claims are directed to a coated paper having a low density, high sheet gloss, high print gloss, good suitability for gravure printing and an excellent coating runnability. These important properties are achieved when the coating layer contains an inorganic pigment in which 65% or more of the particles have a particle diameter in a range of from 0.4 to 4.2 μm combined with an organic hollow pigment having a mean particle diameter of from 0.1 to 0.6 μm .

Considering now each of the documents applied to the examined claims:

JP-A-2002-88679 to Kai et al (Kai) describes a coated paper for gravure printing which has a coating layer containing a specified amount of kaolin as a pigment, in which 65% or more of particles are in a particle diameter range of from 0.4 to 4.2 μm based on volume, and a copolymer latex having a glass transition temperature adjusted to -50°C to 0°C.

Kai shares a common feature with the present invention in using kaolin (a pigment) in which 65% or more of particles are in a particle diameter range of from 0.4 to 4.2 μm based on volume. Concerning an organic pigment, it is merely mentioned in Kai that an organic pigment may be included. Kai does not state that one may use an organic pigment which is "hollow" and has a mean particle diameter of from 0.1 to 0.6 μm . Kai is concerned with a different composition.

Kai does not foresee that coating runnability can be improved by providing a different composition. For example, in Kai the coating speed was 500 m/min in Example 1. Applicants have unexpectedly found that an excellent coating suitability as shown in the Example of the present application even at a coating speeds of 800 or 1100 m/min. Further, the coated paper according to the present invention has an excellent coating runnability, low density, high sheet gloss, high print gloss and a good suitability for gravure printing.

The following reference relates to only item 4 of the Action: JP-A-2002-161494 to Matsumura et al (Matsumura) describes a high gloss gravure printing paper which is obtained by coating a base paper with a coating liquid containing an organic hollow pigment with a particle diameter from 0.2 to 0.5 μm and a delaminated clay having an aspect ratio of from 30 to 60, followed by drying and then subjecting the thus coated paper to supercalendering.

Although Matsumura includes a feature common to the present invention in using an organic hollow pigment of from 0.2 to 0.5 μm in particle diameter, no mention is made of an inorganic pigment in which 65 % or more of particles are in a particle diameter range of from 0.4 to 4.2 μm based on volume, as specified in applicants' claims.

Example 1 of Matsumura describes an inorganic pigment consisting of 70 parts of delaminated clay (Hydraprint available from Huber Corporation), 20 parts of clay (Ultra White 90 available from Engelhard Corporation) and 10 parts of calcium carbonate (FMT-90 available from Fimatec Ltd.). The examiner will note an inorganic pigment of the same type was

employed in Comparative Example 1 of the present invention and its composition ratio was closely similar to the one described above. Comparative Example 1 of the present invention describes an inorganic pigment consisting of “70 parts of high-grade clay (Ultra White 90 available from Engelhard Corporation, volume distribution in the particle diameter range of 0.40-4.20 μm : 59.8%), 20 parts of delaminated clay (Hydraprint available from Huber Corporation, volume distribution in the particle diameter range of 0.40-4.20 μm : 53.2%), and 10 parts of calcium carbonate (FMT-90 available from Fimatec Ltd., volume distribution in the particle diameter range of 0.40-4.20 μm : 71.9%)”. It will be readily apparent that the inorganic pigment of Example in Matsumura differs from an inorganic pigment having 65% or more of particles in the particle diameter range of from 0.4 to 4.2 μm based on volume as specified in the present invention. The composition and properties of the compositions of the present invention are clearly different from Matsumura.

From the viewpoint of advantages, the gravure coated paper of applicants' Comparative Example 1 of the present invention, which corresponds to the high-gloss paper for gravure printing of Matsumura, has a poor coating suitability, suffers from a problem in coating runnability and is inferior in sheet gloss, print gloss and suitability for gravure printing.

JP-A-2001-288690 to Ryu et al (Ryu) provides a flexible printing paper containing a low-density filler having a bulk specific gravity of 0.3 g/ml or less with urea.

Since Ryu's printing paper has no coating layer containing a pigment such as the one specified in the present invention, it corresponds not to a coated paper according to the present invention but to a so-called uncoated paper. Accordingly, it is completely different from the coated paper of the present invention which requires a coating layer containing an inorganic pigment in which 65% or more of particles are in a particle diameter range of from 0.4 to 4.2 μm and an organic hollow pigment having a mean particle diameter of from 0.1 to 0.6 μm . Thus, Ryu differs from the present invention in composition, problems to be solved and advantages.

The following reference relates only to item 5 of the Action: JP-A-H11-279990 to Sasaki et al (Sasaki) does not describe an inorganic pigment in which 65% or more of particles are in a particle diameter range of from 0.4 to 4.2 μm . Thus, it differs from the present invention.

The following reference relates only to item 6 of the Action. JP-A-H03-82897 to Hirose et al (Hirose) does not describe the use an inorganic pigment in which 65% or more of particles

are in the particle diameter range of from 0.4 to 4.2 μm . Thus, it differs from the present invention.

The following reference refers only to item 7 of the Action. JP06-235194 to Hayashi et al (Hayashi) does not describe the use of an inorganic pigment in which 65% or more of particles are in the particle diameter range of from 0.4 to 4.2 μm . Thus, it differs from the present invention.

The present invention provides a coated paper for gravure printing having an excellent coating runnability, low density, high sheet gloss, high print gloss, fewer missing dots and good suitability for gravure printing.

Kai is silent as to any improvement in the coating runnability or high printing gloss, i.e., problems to be solved by the present invention. On a constituent/constitution basis, Kai is common to the present invention in using kaolin (a pigment) in which 65% or more of particles are in the particle diameter range of from 0.4 to 4.2 μm based on volume. Kai pays little attention to an organic pigment -- it is merely mentioned that an organic pigment may be used. There certainly is no discussion or suggestion of an organic hollow pigment having a small particle diameter which is "hollow" and has a mean particle diameter of from 0.1 to 0.6 μm as specified in the present invention and defined/required in applicants' claims.

Kai does not address coating runnability can be improved as achieved in the present invention. Furthermore, the print gloss in Kai is not so high as compared with the sheet gloss. For example, the coating speed was 500 m/min in Example 1 of Kai. By contrast, while an excellent coating is shown in Example 1 of the present invention at coating speeds of 800 or 1100 m/min. Further, the coated paper according to the present invention has a low density, high sheet gloss, high print gloss and good suitability for gravure printing.

The constitutional differences between Kai and the present invention reside in that an organic hollow pigment having a small particle diameter, i.e., a mean particle diameter of from 0.1 to 0.6 μm is used in the present invention whereas no such organic hollow pigment is used in Kai. The combined use of an inorganic pigment having a distribution in which 65% or more of particles are in the particle diameter range of from 0.4 to 4.2 μm with an organic hollow pigment having a small particle diameter, namely, an excellent coating runnability (preferably at a coating

speed of 600 m/min or higher, more preferably at a coating speed of 1000 m/min or higher) can be achieved, and other product qualities are also significantly improved.

In contrast, while Matsumura, mentions use of an organic hollow pigment of from 0.2 to 0.5 μm in particle diameter. However, there is no suggestion that improved coating runnability in Matsumura, as the evaluation was conducted exclusively at a coating speed of only 450 m/min. It is neither mentioned nor suggested that the sheet gloss and print gloss are elevated or missing dots are reduced. There is no suggestion of the present invention based on the combination of Kai and Matsumura.

Ryu relates not to a coated paper having a coating layer containing a pigment but to an uncoated paper provided with a pigment-free coating layer. Namely, Matsumura differs from the present invention in the type/category of paper.

Although it is stated in Sasaki to employ hollow polymer particles having a diameter of from 0.4 to 2.0 μm , the hollow polymer particles employed in the Example had a diameter of 1.0 μm – one that is excluded from the scope of the present invention. Moreover, Sasaki observes that the coating runnability was worsened by use of these particles. There is no suggestion to combine Kai with Sasaki.

Although an organic hollow pigment is described in Hirose, nothing is disclosed about the particle diameter. The diameter of the particles employed in Example exceeded the mean particle diameter of the present invention (0.6 μm).

Further, Hayashi relates to a coated paper for offset printing, which differs from a coated paper for gravure printing as claimed in the present invention. Although a hollow plastic pigment having a particle diameter of 0.5 μm or more is employed in Hayashi, a person skilled in the art could never have conceived of improving the coating runnability and, furthermore, improving its suitability for gravure printing.

In summary, it is respectfully submitted that the claims of this application define inventive subject matter. The applied references, even considered in the combinations proposed in the Action, are not based upon logical, art-recognized reasons. A person of ordinary skill in the art would not make the "artificial" combinations asserted in the Official Action. In any event, even when combined, the references are not suggestive of the subject matter defined by

OKOMORI et al.
Appl. No. 10/527,328
August 29, 2006

applicants' claims. Reconsideration and allowance are solicited. Should the examiner require further information, please contact the undersigned.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Arthur R. Crawford
Reg. No. 25,327

ARC:eaw
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100